Performance Management Plan
for
Lawrence Livermore National Laboratory
Site 300

U.S. Department of Energy
Oakland Operations Office
Environmental Management Program

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Executive Summary

This Performance Management Plan (PMP) contains the Department of Energy Oakland Operations Office strategic approach for achieving risk reduction and implementing environmental restoration activities at Lawrence Livermore National Laboratory Site 300 by Fiscal Year 2008. Environmental restoration activities and associated cleanup tasks are conducted under the provisions of the Comprehensive Environmental Response, Compensation, and Liability Act. Project closure and mission complete from the Environmental Management (EM) perspective is defined as the implementation of codified remedial actions through subsequent buildout of the approved remediation network. At EM mission completion, long-term surveillance and maintenance of implemented remedial actions will eventually be followed by transfer of these cleanup responsibilities from EM to the National Nuclear Security Administration Defense Programs, who is the landlord for Site 300.

This PMP considers issues and calls-to-action noted in the Environmental Management Top-to-Bottom Review (February 2002). The Review identified the need to refocus cleanup work on risk reduction rather than risk management and project closure in place of program management.

In June 2002, a Letter of Intent was signed by the State of California and the U.S. Environmental Protection Agency documenting concurrence with the principles to be included in this PMP (see attachment A). In July, the Assistant Secretary for Environmental Management approved the Site 300 Letter of Intent.

The scope of the PMP is based on the cleanup remedies identified in the Interim Site-Wide Record of Decision for Site 300 (February 2001). To fully implement these remedies, the following actions need to be conducted:

1. Complete the installation of ground water and soil vapor extraction and treatment facilities.
2. Perform excavation of soil contaminated with polychlorinated biphenyls and tritium.
3. Install the monitoring networks necessary to evaluate the progress of monitoring-only and monitored natural attenuation remedies.
4. Complete characterization work at specific areas identified in the Site-Wide Remedial Investigation Report.

The primary benefits resulting from these actions include:

1. Cleanup of the onsite and offsite ground water contaminated plumes, removing the threat to both onsite and offsite water-supply wells and the associated risk to human health and loss of beneficial uses of ground water.
2. Prevention of further contaminant migration, reducing both the cost and duration of long-term ground water remediation.
3. Control of contaminant source areas, preventing further releases of contaminants to the underlying ground water.
4. Reduction of the current unacceptable risks to human and ecological receptors.
5. Reduction of the overall mortgage to the taxpayers.

1. Purpose

The purpose of this Performance Management Plan (PMP) is to provide a management-level summary of how the environmental restoration project will be implemented at Lawrence Livermore National Laboratory (LLNL) Site 300. This will be accomplished primarily by implementing the remedies required by the Interim Site-Wide Record of Decision (ROD) for Site 300 through subsequent buildout of the approved remediation network, resulting in a reduction of risks to human health and the environment. Transfer of environmental restoration activities to the National Nuclear Security Administration (NNSA) is anticipated to occur following remediation network buildout once an agreement between NNSA and Environmental Management (EM) is reached on long-term stewardship. The Department of Energy (DOE) Oakland Operations Office recognizes that a long-term stewardship (LTS) program is an integral part in the overall continual protection of human health and the environment, and will work collaboratively with NNSA to develop and implement a LTS plan for Site 300.

Full implementation of the selected remedies also means that the risk of cost and schedule growth common to long-term programs is minimized. The EM Top-to-Bottom Review emphasized that risk reduction, not risk management, is a key to achieving site closure. This PMP is consistent with the findings of the Top-to-Bottom Review.

This PMP also describes the measures and milestones that will ensure accountability from both DOE and the LLNL Management and Operation (M&O) contractor (the University of California). The approach relies on sound, well-proven project management and technical strategies. The project risks are well understood and can be effectively managed using existing project management and control systems. The challenges and risks associated with the scope of work described in this PMP are within the resolution capabilities of the DOE Oakland Operations Office and LLNL environmental restoration project team.

2. Background

Site 300 is situated in the eastern Altamont Hills about 17 miles east of Livermore and 8.5 miles southwest of Tracy, California. The site is a remote experimental testing facility where DOE conducts research, development, and testing of high explosives and integrated non-nuclear weapons components. This work includes formulating, processing, machining, assembling, and detonating explosives.

During past Site 300 operations, contaminants were released to the environment from surface spills and piping leaks, leaching from unlined landfills and pits, high-explosive test detonations, and disposal of waste fluids in lagoons and dry wells (sumps). The primary contaminants of concern at Site 300 include volatile organic compounds (VOCs), high-explosive compounds, perchlorate, tritium, depleted uranium, nitrate, polychlorinated biphenyls (PCBs), dioxins, furans, silicone oils, and metals. The release sites and contaminants at Site 300 are shown on Figure 1.

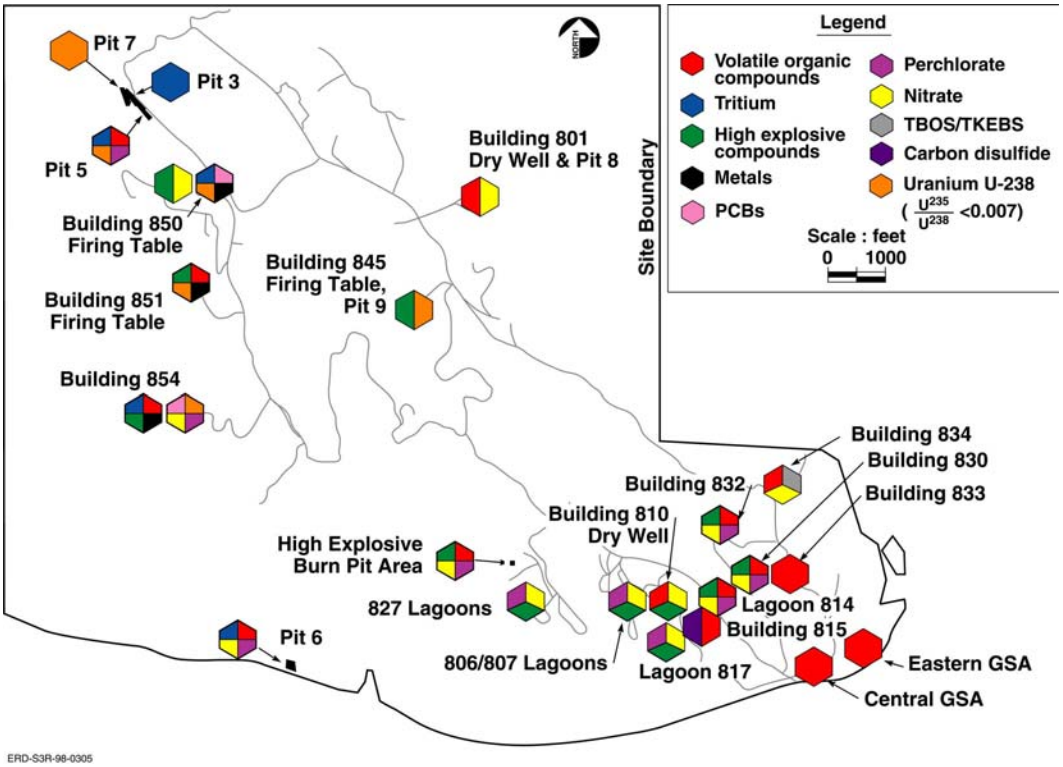

Figure 1. Site 300 Release Sites and Contaminants

DOE began environmental restoration activities at Site 300 in 1981, and the site was placed on the U.S. Environmental Protection Agency (U.S. EPA) National Priorities List in 1990 and as such is subject to the requirements of the Comprehensive Environmental Response, Compensation, and Liability Act (CERCLA). Cleanup is performed under the terms of a Federal Facility Agreement (June 1992) and overseen by the U.S. EPA, the California Department of Toxic Substances Control, and the California Regional Water Quality Control Board. DOE is the lead agency for environmental restoration at Site 300.

In 2001, an Interim Site-Wide ROD for Site 300 was signed by DOE, the U.S. EPA, and State regulatory agencies. The ROD was designated as interim to ensure remediation activities commence while ground water cleanup standards are negotiated. A Final Site-Wide ROD is planned for 2007 that will codify these cleanup standards.

Significant progress toward cleanup has already been made at Site 300. Several landfills containing radioactive debris have been closed, as have a number of high explosive rinse water lagoons and open burn facilities. Ground water and vadose zone remediation are well underway in many areas of the site. However, additional actions are required to fully implement the remedies selected in the Interim ROD. These actions include:

1. Installing ten additional ground water and/or soil vapor extraction and treatment systems.
2. Excavating surface soil contaminated with tritium and PCBs.
3. Implementing enhanced vadose zone and ground water monitoring under several landfills.
4. Reducing and managing risk to human and ecological receptors.

5. Completing site characterization in several areas.

In addition, innovative approaches have been incorporated into the overall remediation strategy to reduce both risk and cost, including monitored natural attenuation of VOCs and tritium, bioremediation, and phytoremediation.

The locations of current and proposed remedial actions at Site 300 are shown on Figure 2.

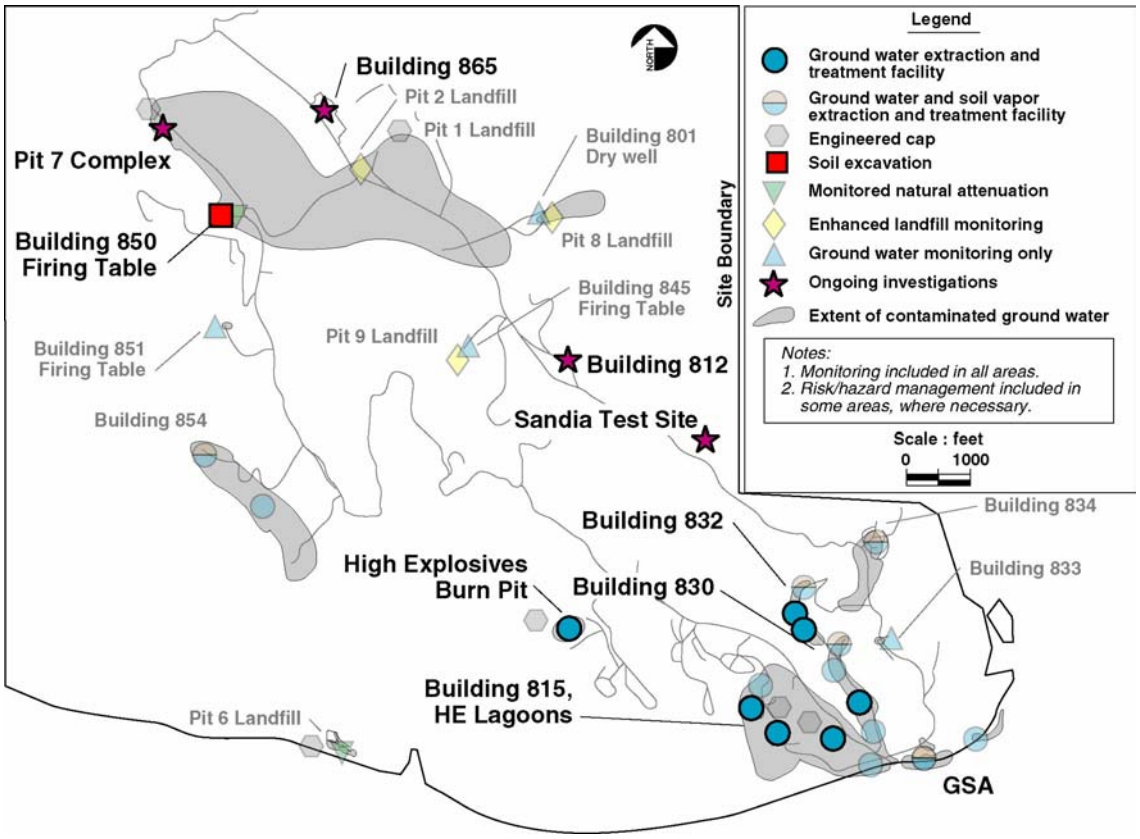

Figure 2. Current and Proposed Remedial Actions

3. Environmental Management End State

The approved remedial actions required by the Interim ROD can be completely implemented by the end of FY 2008, thereby reducing the risks, overall liability, and mortgage at Site 300. The selected interim response actions for each individual operable unit (OU) outlined in the Interim ROD are intended to be consistent with the final actions selected for Site 300 in the Final ROD.

With the level of funding presented in Section 4.4, the DOE Oakland Operations Office commits to achieving the following end state by FY 2008:

1. All ground water and soil vapor extraction and treatment systems will be in place and in operation, reducing risk and preventing further plume migration.

2. All contaminant source areas will be controlled, preventing further degradation of ground water.
3. Excavation and removal of contaminated soil at the Building 850 Firing Table will be completed, reducing the unacceptable risk to onsite workers and preventing further impacts to ground water.
4. Monitoring networks for the "monitoring-only" and "monitored natural attenuation" remedies will be completed and operational.
5. The risk and hazard management program to prevent impacts to human health and ecological receptors during cleanup will be fully implemented.
6. Compliance monitoring programs will be in place to assess: (1) the effectiveness of the remedial actions, and (2) changes in plume size and concentration that could impact downgradient receptors.
7. Final cleanup standards and remedial actions will be established.
8. All CERCLA-required documentation will be completed, with the exception of ongoing Five-Year Reviews and regular compliance reporting during LTS.
9. Characterization of remaining confirmed and potential release sites will be completed.
10. DOE Oakland Operations Office will initiate its LTS plan for Site 300 and responsibility for environmental restoration activities mandated by CERCLA will subsequently be transferred from EM to NNSA.

4. Strategic Initiative

The priorities, milestones, assumptions, costs, and project risks associated with the construction and implementation of environmental restoration remedial actions at Site 300 are described in Sections 4.1 through 4.5.

4.1. Priorities

The remediation strategy for Site 300 described in this PMP employs a prioritized approach with an emphasis on risk reduction:

1. Prevent contamination of water-supply wells and associated risk to human health and loss of beneficial uses of ground water.
2. Prevent exposure of onsite workers to contaminants and reduce the current unacceptable risk.
3. Control and prevent further offsite plume migration.
4. Reduce contaminant concentration and mass in the vadose zone and ground water to prevent further impacts to water-supply aquifers and additional plume migration.
5. Control contaminant sources.

In addition, the DOE Oakland Operations Office will continue to evaluate and implement cost-effective, innovative approaches to reduce risk and expedite cleanup wherever possible.

4.2. Milestones

The major regulatory-mandated milestones that will be achieved throughout the performance period (FY 2003-2008) of the cleanup plan are:

FY 2003 Milestones:

- Pit 7 Landfill Complex Remedial Investigation.

FY 2004 Milestones:

- Building 854 Remedial Design.
- Building 850 Remedial Design.
- Pit 7 Landfill Complex Remedial Investigation/Feasibility Study.
- Building 812 characterization.

FY 2005 Milestones:

- ROD Amendment for the Pit 7 Landfill Complex.
- General Services Area OU ground water extraction and treatment system buildout.
- Building 832 Canyon OU Remedial Design.
- Building 850 soil excavation.
- Building 865 characterization.

FY 2006 Milestones:

- Site-Wide Remedial Evaluation Summary.
- Site-Wide Proposed Plan.
- Pit 6 Landfill monitoring network.
- Building 854 ground water extraction and treatment system buildout.
- Five-Year Review for the General Services Area.
- Sandia Test Site characterization.

FY 2007 Milestones:

- Pit 7 Landfill Complex Remedial Design.
- Final Site-Wide Record of Decision.
- Building 834 ground water and soil vapor extraction and treatment system buildout.
- Five-Year Review for the Building 834 OU.
- High Explosives Process Area ground water extraction and treatment system buildout.

- Building 832 Canyon OU ground water and soil vapor extraction and treatment system buildout.

FY 2008 Milestones:

- Final Site-Wide Remedial Design Work Plan.
- Buildout of the monitoring network for the "monitoring-only" and "monitored natural attenuation" remedies.
- Revised Site-Wide Compliance Monitoring Plan/Contingency Plan.

4.3. Assumptions

The DOE Oakland Operations Office commitment to achieve the milestones described in Section 4.2 is based on the following assumptions:

1. The remedies selected in the Final Site-Wide ROD (scheduled for 2007) will not differ significantly from the remedies selected in the Interim Site-Wide ROD. Major revisions to the Remedial Design documents or the remedies already in place will not be required.
2. The ground water cleanup standards selected in the Final Site-Wide ROD are no lower than drinking water Maximum Contaminant Levels.
3. Significant contamination is not found at either Building 865 or the Sandia Test Site that would warrant remediation.

4.4. Costs

A total allocation of $65.41 million over a six-year period (FY 2003 – 2008) would result in significant risk reduction and complete the implementation of the remedies selected in the Interim ROD. The funding needed to construct and implement the approved remediation network at Site 300 are shown in Table 1.

Table 1. Funding required for implementation of the Site 300 cleanup (in $M).

FY 2003	FY 2004	FY 2005	FY 2006	FY 2007	FY 2008	Total
10.83	10.94	11.76	11.88	11.00	9.00	65.41

Funding commensurate with the allocation above is necessary to complete the milestones in Section 4.2 and achieve the end state delineated in Section 3.

4.5. Project Risks

The project risks associated with completing the approved remedial action buildout infrastructure at Site 300 are minimal. The scope is well defined, objectives are clear, cost-effective remedial technologies have been selected, and the appropriate project management and control systems are in place. Project risk management will be conducted to address uncertainties or foreseeable problems that could arise during implementation of the remedial actions at

Site 300 as outlined in this PMP. The cleanup process includes both technical and logistical risks.

Technical risk is related to the construction and/or implementation of remedial actions for ground water, soil, and bedrock at the site. For example, the design of remediation systems is based on data collected to date and best professional judgement. However, the actual performance of these systems can only be determined once the systems are in place and operating. If inadequate plume capture is indicated by data collected once the facilities are operating, the DOE Oakland Operations Office will address this contingency using a phased approach beginning with the most cost-effective method (e.g., adjusting extraction wellfield flow rates).

Logistical risk is related to changes in scope of work, regulations, and land/ground water use. Over the course of remedy implementation and cleanup, changes to the scope of work for site remediation may be necessary to achieve cleanup standards and/or to respond to changes in the regulatory environment. In addition, changes to land or ground water use in the vicinity of Site 300 could occur that could impact remediation efforts at the site. The DOE Oakland Operations Office will work with the regulatory agencies and any affected property owner to negotiate a solution that would mitigate impacts to the cleanup. The scope of work, schedule, and costs outlined in the PMP would be modified to reflect any significant changes to the cleanup strategy.

Additional information related to responses to technical and logistical contingencies that could be encountered during the course of cleanup is included in the Site 300 Compliance Monitoring Plan/Contingency Plan document.

5. Regulatory Framework

Although DOE is the lead agency for environmental restoration conducted under CERCLA at Site 300, oversight by federal and state regulatory agencies is required. This oversight is currently provided by the U.S. EPA, the California Department of Toxic Substances Control, and the California Regional Water Quality Control Board. These three agencies are signatories to the LLNL Site 300 Federal Facility Agreement and have approval/concurrence authority for Site 300 environmental restoration documents and activities.

Ongoing regulatory interface will continue during the execution of this PMP. This includes: (1) regular meetings to discuss ongoing and planned project activities, (2) annual site tours, and (3) semiannual compliance reporting. The DOE Oakland Operations Office also holds quarterly meetings with the recipients of a Technical Assistance Grant and conducts public workshops and meetings.

The DOE Oakland Operations Office will continue to meet regularly with the regulatory agencies to exchange information, prioritize activities, and resolve any issues that may hinder timely action on regulatory submittals. These meetings will ensure the smooth execution of cleanup to reduce the overall risk associated with environmental contamination and achieve site closure.

6. Financial and Managerial Controls

DOE Headquarters is regularly provided with detailed descriptions of the DOE Oakland Operations Office Environmental Management systems that are in place to ensure that the cleanup work is performed under sound financial and managerial controls.

Project management is a fundamental concept in the way EM projects at the DOE Oakland Operations Office are managed. A structured system for managing the project's technical scope, cost, and schedule baselines and addressing proposed changes to the baselines is conducted through a formal change control process.

The Site 300 cleanup project has an integrated baseline that correlates the current year with outyear baselines to ensure safety, risk reduction, and compliance in all aspects of project execution. The work scopes are based on negotiated schedules with the regulatory agencies having jurisdiction of restoration operations. The negotiated schedules are codified in the Site 300 Federal Facility Agreement and other decision documents required by CERCLA. The baselines serve as quantitative expressions by which LLNL performance can be measured. Cost and schedule variances and analysis provides a comprehensive system to monitor the progress against project baselines. Deliverables will include critical path and enforceable agreement milestones to ensure the completion of key project activities. Performance metrics from this PMP will ensure LLNL activities are achieving the desired outcomes.

Control of management and infrastructure costs will ensure that the maximum amount of funding and work will be applied to risk reduction. In addition, tracking critical site-specific actions, such as implementation of improved business processes and contracting mechanisms, will contribute to the success of the Site 300 cleanup project. A rigorous and formal baseline change control process will be followed to manage and control changes and the effect these changes may have on key milestones and deliverables. The DOE Oakland Operations Office will continue to take necessary steps to revise the EM performance measures to increase emphasis on real risk reduction by focusing on key end points and eliminating the use of subjective metrics.

The DOE Oakland Operations Office, including the Environmental Management Program, is dedicated and committed to environmental, safety and health (ES&H) and safeguards and security compliance. While the focus of this PMP is on the implementation of environmental restoration tasks, full compliance with all safety, health, and safeguards and security requirements will not be compromised. In support of project execution, the DOE Oakland Operations Office and LLNL will continue to ensure that all activities are conducted in accordance with the DOE Integrated Safety Management System. All activities are, and will remain, protective of human health and the environment as well as compliant with applicable or relevant and appropriate requirements.

Attachment A
Letter of Intent